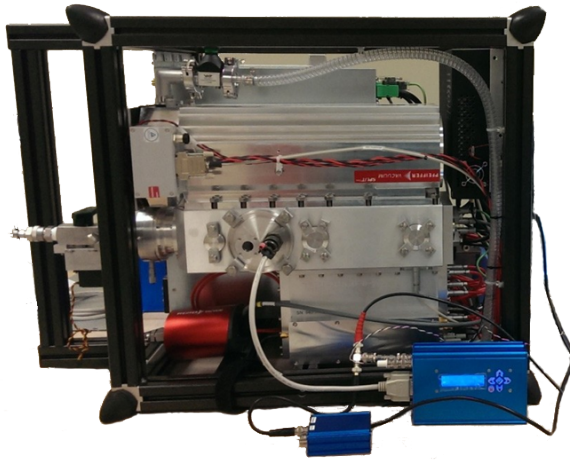
AerodyneResearch

Technology Enhancing Science

Mini AMS

Mini-Aerosol Mass Spectrometer System

Measure real-time, non-refractory, size-resolved particulate chemical composition and mass.



Applications

- Continuous on-line measurement of ambient aerosol mass concentrations
- Size resolved composition analysis for particulate ammonium, nitrate, sulfate, chloride, and organic species
- Field measurements of aerosol chemical composition from high pollution at urban sites to pristine background at remote locations
- Routine air quality monitoring
- Aerosol chamber studies
- Source characterization
- Optical/CCN closure
- Industrial process monitoring

Advantages

- Compact vacuum system for applications where space is limited (i.e., mobile platforms)
- Similar size compared to TOF-ACSM but provides size resolution measurements
- Aerodynamic particle lens for efficient gas-particle separation
- Linear universal detection through two-step thermal vaporization (~600 C) and electron impact ionization process
- Single particle detection mode via event trigger
- Mass spectrometric analysis (0-400 m/z)
- Particle aerodynamic diameter determined from particle time-of-flight (velocity) measurements using a particle beam chopping technique
- Remote control ready

Mini-AMS

Specifications

Detection Limit: (μg m^{-3}, 10 minute, 3σ)

Organic:	0.08
Sulfate:	0.007
Nitrate:	0.008
Chloride:	0.008
Ammonium:	0.034

Resolution

- Up to 600 m/Δm

Size Range

- 70-700 nm vacuum aerodynamic diameter (standard lens)
- 110-3500 nm (PM2.5 lens option)

Data Rate

- 1-5 minute typical data reporting interval
- Typical fast MS mode data rate 1 Hz

Sample Flow

- 85 cc min^{-1} (volumetric flow)

Data System

- High speed acquisition of 1.6 GHz with custom firmware for single particle (event trigger) mode

Software

- Custom acquisition and analysis routines
- Specialized routines for PMF analysis of the organic fraction

Size/Weight

- Benchtop - 25.6 in x 20.1 in x 23.6 in; 165 lbs [65 cm x 51 cm x 60 cm; 75 kg]

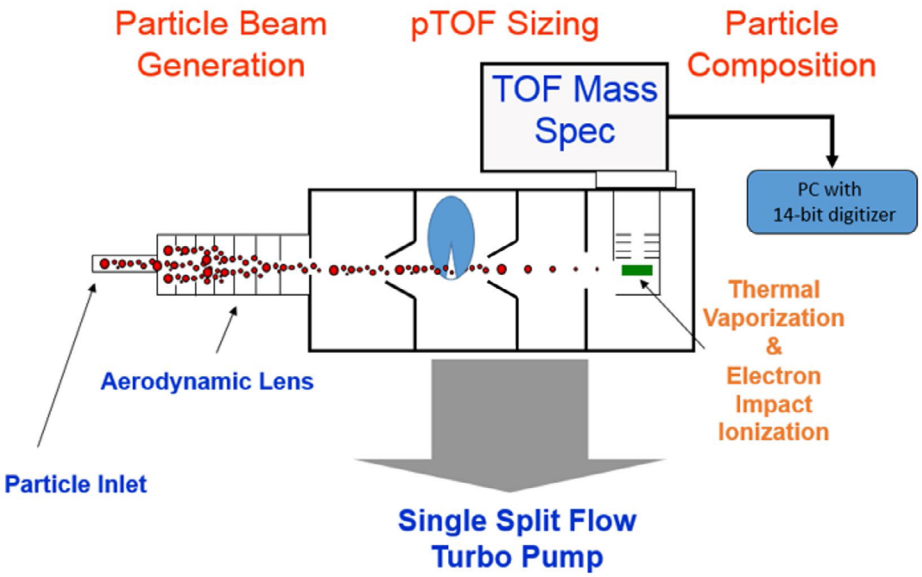
Electrical

- 600 W max, 350 W typical
- 90-260 VAC, 50-60 Hz

Available Options

- PM 2.5 inlet for extended size-range
- Capture vaporizer for improved mass accuracy

*Specifications depend on instrument settings and are subject to change without notice.



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